phorous vacuole membrane should render the membrane particularly susceptible to saponin, digitonin or other detergents that bind CL. Freeze–fracture using filipin to detect CL within the parasitophorous vacuole membrane should give strikingly positive results. Parasitophorous vacuoles containing *Plasmodium* are not totally disrupted with saponin[16], nor are merozoites labelled with NBD-CL, and this suggests indirectly that CL is not a major component of either the rhoptry or the parasitophorous vacuole membrane in these species. Finally, the absence of phosphatidylserine and sphingomyelin in the rhoptry fraction, both of which are present in the plasma membranes of cells invaded by *T. gondii*, provides an additional mechanism to discern the relative contributions of host cell plasma membrane lipids and rhoptry lipids to parasitophorous vacuole membrane formation. Elucidation of the lipid profile of the parasitophorous vacuole membrane is the next step in the process. Purification of vacuole membranes in sufficient quantity to complete a quantitative biochemical analysis will be a daunting task, putting a premium on innovative approaches for addressing this puzzling problem.

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Obituary

John Graham Scaife, 1934–1991

D. Walliker

Those in the field of molecular parasitology will be greatly saddened by the death of John Scaife in Edinburgh on 5 June 1991, following prolonged illness.

John, who was one of the pioneers of molecular parasitology, came into the field late in his career. Having obtained his PhD in bacterial genetics at the Postgraduate Medical School, London in 1964, he worked for four years at the Department of Medical Microbiology, Harvard Medical School and then joined the MRC Molecular Genetics Unit, set up first in London and subsequently in Edinburgh under the direction of William Hayes. In 1974 he became a member of the Department of Molecular Biology in Edinburgh University. His principal research area at that time was the control of gene expression in bacteria, a subject in which he was already an acknowledged world authority.

In 1979 he decided to enter the then little-explored field of molecular parasitology. At that time, work by several groups was under way on trypanosomes, which could be conveniently grown in the laboratory in quantities sufficient for molecular analysis. The development of the culture system for *Plasmodium falciparum* by Trager and Jensen in 1976 meant that this organism could now be studied by molecular techniques, and John was one of the first to realize the opportunities this offered. Work carried out by members of his enthusiastic group which can be singled out for special mention include the early cloning, expression and sequencing of blood-stage antigens, especially the merozoite surface antigen (MSA-1), the Exp1 antigen and, most recently, the rhoptry antigen, RAP-1. In 1983 he was awarded a personal chair in Molecular Parasitology, the first in this subject in the UK.

John was an exceptional teacher, able to convey with consummate skill the complexities and excitements of molecular biology to those unfamiliar with the subject. His untimely death is a sad loss to malaria research; he will be greatly missed by colleagues and friends in many countries.

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